REMARKS

The Office Action

Claims 1-3, 5, and 7-30 are pending. Claim 30 has been withdrawn from consideration. Claims 1-3, 5, and 7-29 stand rejected for a lack of enablement. Claims 1, 2, 12-15, 17, 19, 22, 27, and 28 stand rejected for indefiniteness. Claims 1-3, 5, and 7-29 stand further rejected for obviousness-type double patenting over claims 1-16 of Renshaw et al. (U.S. Patent No. 6,103,703; hereafter "Renshaw"). Claims 1-3, 5, and 7-29 stand rejected for anticipation by Yamamoto et al. (U.S. Patent No. 5,635,486; hereafter "Yamamoto") and Wurtman et al. (U.S. Patent Application Publication No. US 2003/0114415; hereafter "Wurtman"). Claims 1-3, 5, 7-14, 16-21, and 27-29 stand rejected for anticipation by Fernandez (*Arzneimittelforschung. Drug Res.* 33:1073-1080 (1983)). Finally, claims 1-3, 5, 7-14, and 16-29 stand rejected for anticipation by Ferrer Internacional, S.A. (International Publication No. WO 01/72288; hereafter "Ferrer"); Radulovacki et al. (*J. Pharmacol. Exper. Ther.* 228:268-274 (1984); hereafter "Radulovacki"); and Satoh et al. (*Euro. J. Pharmacol.* 351:155-162 (1998); hereafter "Satoh"). Applicants traverse these rejections.

Withdrawal of Claim 30

The Office has withdrawn claim 30 from consideration. According to the Office, claim 30 is directed to subject matter which is beyond the scope of the originally filed and searched claims. Applicants disagree. Claim 30, while reciting additional therapeutic

moieties, is a dependent claim. It is therefore by definition of narrower scope than that originally claimed and searched (35 U.S.C. § 112, 4th paragraph). Furthermore, according to the standards set forth in M.P.E.P. § 809, claim 1 is a linking claim because it is generic to all of its dependent claims. M.P.E.P. § 809 also states that "should any linking claim be allowable, the restriction requirement between the linked inventions must be withdrawn." Accordingly, Applicants expect that claim 30 will be rejoined when claim 1 is found allowable.

Rejections under 35 U.S.C. § 112, first paragraph

Claims 1-3, 5, and 7-29 stand rejected for lack of enablement. The basis for the rejection is the Office's belief that "the scope is excessive in view of the disclosed enabling exemplifications." Applicants disagree.

M.P.E.P. § 2164.04 states:

> A specification disclosure which contains a teaching of the manner and process of making and using an invention in terms which correspond in scope to those used in describing and defining the subject matter sought to be patented must be taken as being in compliance with the enablement requirement of 35 U.S.C. 112, first paragraph, unless there is a reason to doubt the objective truth of the statements contained therein which must be relied on for enabling support.
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> As stated by the court, "it is incumbent upon the Patent Office, whenever a rejection on this basis is made, to explain *why* it doubts the truth or accuracy of any statement in a supporting disclosure and to back up assertions of its own with acceptable evidence or reasoning which is inconsistent with the contested statement. Otherwise, there would be no need for the applicant to go to the trouble and expense of supporting his presumptively accurate disclosure."
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> References should be supplied if possible to support a prima facie case of lack of enablement, but are not always required. In re Marzocchi, 439 F.2d 220, 224, 169 USPQ 367, 370 (CCPA 1971). However, specific technical reasons are always required.

The instant claims meet these standards.

In the present application, Applicants have described three methods for addressing various conditions. For these methods, Applicants have further provided exemplary embodiments of the individual conditions (pages 2, 6, and 7), numerous compounds to achieve the claimed effects (such as cytidine, CMP, CDP, CTP, dCMP, dCDP, dCTP, CDP-choline, cytosine, uridine, UMP, UDP, UTP, triacetyl uridine, creatine, adenosine, AMP, ADP, ATP, S-adenosylmethionine, dipyridamole, propentofylline, and EHNA), and patient populations (page 2). Applicants have also provided experimental data on a method of normalizing the sleep/wake cycle proving that the claimed result is achieved (page 7 and Figures 1 and 2A-2B). Moreover, Applicants have provided sound scientific argument to support the effectiveness of the claimed compounds for the full scope of conditions as claimed (page 6, line 25 – page 10, line 8). Applicants have provided exemplary doses, formulations, and routes of administration of these compounds (pages 10-11). Methods are also known in the art to assess and, if necessary, alter the bioavailability of these compounds (see, e.g., *Remington The Science and Practice of Pharmacy*, 20th ed., Chapter 53 and EP 0188647). Applicants have also provided adequate disclosure on how to assess therapeutic efficacy (Figures 1 and 2 and page 7, line 9 – page 8, line 2).

The Office does not, however, believe Applicants have enabled the instant claims. The only reason provided by the Office for the present rejection is "Applicant has claimed broadly the treatment of sleep deprivation in all human and mammalian hosts, but has not provided sufficient exemplifying data to support such a broad scope of subject matter." This reasoning is merely a conclusion and lacks support from either references or specific technical reasons. Moreover, although Applicants provide experimental data and scientific reasoning for the effectiveness of the claimed compounds for the claimed indications, the Office states "the instant data set is simply inadequate to support the instant patent claims because of the lack of showing that the claimed effects of CDP-choline administration are common to a reasonable number of similarly situated hosts in need of such treatment." The Office appears to be applying a per se rule that a generic claim requires an abundance of experimental data. M.P.E.P. § 2164.02, however, states: Compliance with the enablement requirement ... does not turn on whether an example is disclosed. This section further states: "The mere fact that something has not previously been done clearly is not, in itself, a sufficient basis for rejecting all applications purporting to disclose how to do it.... [B]ecause only an enabling disclosure is required, applicant need not describe all actual embodiments." Furthermore, Applicants have presented data in this application, and under these circumstances, "[t]o make a valid rejection, one must evaluate all the facts and evidence and state why one would not expect to be able to extrapolate that one example across the entire scope of the claims." The Office has failed to do so. Instead, the Office seems to be requiring Applicants either

to conduct clinical trials or to narrow their claims to match the precise experiments disclosed in the specification. As such, the Office has failed in its burden to provide an adequate basis for rejecting the instant claims.

In addition, the Office provides a *Wands* analysis to support its position that the present claims are not enabled. Applicants address each of the factors described by the Office below.

(A) Breadth of the Claims.

In considering this factor, the Office merely concludes that the scope is excessive because the claims recite generic terms. While the claims are generic, as discussed above, Applicants have provided exemplary embodiments of the individual conditions, numerous compounds to achieve the claimed effects, exemplary doses, formulations, and routes of administration of these compounds, exemplary patient populations, sound scientific argument to support the effectiveness of the claimed compounds for the full scope as claimed and methods of assessing therapeutic efficacy, with the prior art providing additional information on the bioavailability of these compounds. Therefore, Applicants have provided disclosure that bears a reasonable correlation to the scope of the claims, as required in M.P.E.P. § 2164.08.

(B) Nature of the Invention.

The Office has incorrectly combined all of the claimed methods under the designation "treatment of sleep disorders." While true of claims 12 and 22, claims 1 and 27 are directed to methods of normalizing the sleep/wake cycle, which are not treatments

of a sleep disorder, and claim 17 is directed to a method of increasing cognitive function in a sleep-deprived mammal, which is also not treatment of a sleep disorder.

(C) The State of the Prior Art.

In characterizing the prior art, the Office states that "CDP-choline is associated in some prior art references with the effective amelioration of insomnia." As is discussed below with respect to the § 102 rejections, Applicants emphasize that the individuals treated with CDP-choline in the prior art suffered from cerebral injuries. Applicants also note that the Office has rejected the instant claims as being anticipated by no fewer than six references. Thus, according to the Office, there is substantial guidance in the art on treatment of the conditions claimed by Applicants. While Applicants distinguish each of the cited references from the instant claims in the arguments presented herein, the cited art is relevant to conditions related to, yet distinct from, those instantly claimed and therefore provides guidance to one skilled in the art, when combined with the instant disclosure (M.P.E.P. § 2164.05(a)).

(D) The Level of One of Ordinary Skill.

The Office has misconstrued this prong of the analysis as relating to what is known in the prior art about the effects of the claimed compounds on the claimed conditions. Applicants assert that the level of one of ordinary skill in this art is that of a Ph.D. level medicinal chemist or a medical doctor. These individuals have a high level of skill in the pharmaceutical arts. Such individuals would be able to practice the claimed methods based on the present disclosure. As discussed above, Applicants have provided

exemplary embodiments of the individual conditions, numerous compounds to achieve the claimed effects, exemplary doses, formulations, and routes of administration of these compounds, exemplary patient populations, sound scientific argument to support the effectiveness of the claimed compounds for the full scope as claimed and methods of assessing therapeutic efficacy, because optimization of these parameters, once provided by Applicants, is routine in the art (M.P.E.P. § 2164.05(b)).

(E) The Level of Predictability in the Art.

With respect to this prong, the Office merely states that the art of treating sleep disorders in highly variable in its predictability because of the large array of different causes or circumstances under which it is observed to occur. This view is undermined by the six references cited by the Office. M.P.E.P. § 2164.03 states that predictability "relates to the ability of one skilled in the art to extrapolate the disclosed or known results to the claimed invention." As discussed above, Applicants' specification includes experimental data and scientific reasoning to support the effectiveness of the claimed compounds for the full scope as claimed. Furthermore, the Office has cited six references that discuss conditions related to those instantly claimed.

(F) The Amount of Direction Provided by the Inventor.

In considering this prong, the Office has only considered the experimental data provided by the Applicants. Again, in addition to these data, Applicants provide lists of specific compounds for use in the methods of the invention, preferred dosages, formulations, and routes of administration of these compounds, exemplary patient

populations, sound scientific argument to support the effectiveness of the claimed compounds for the full scope as claimed and methods of assessing therapeutic efficacy. Given this disclosure and the prior art, nothing more is required to allow the skilled artisan to practice the invention (M.P.E.P. § 2164.03).

(G) The Existence of Working Examples.

In commenting on this factor, the Office acknowledges that Applicants have provided a working example but is unable to discern the conditions being treated. As is stated in the specification on page 7, Figure 1 shows data indicating the CDP-choline improves sleep quality, Figures 2A-2B show the normalization of the sleep/wake cycle of a cocaine user after administration of CDP-choline. As Applicants have provided a working example, M.P.E.P. § 2164.02 requires the Office to "evaluate all the facts and evidence and state why one would not expect to be able to extrapolate that one example across the entire scope of the claims." The Office has failed to do so. Moreover, Applicants provide scientific reasoning in the specification to support the effectiveness of the claimed compounds for the full scope as claimed.

(H) The Quantity of Experimentation Needed to Make or Use the Invention Based on the Content of the Disclosure.

For this prong, the Office concludes that the quantity of experimentation is excessive "in light of the indefiniteness and functionality of the claims." The Office also only considered the experimental data provided and not the scientific reasoning or exemplary conditions, compounds, dosages, formulations, routes of administration,

patient populations, and assay methods provided. As is discussed below, the instant claims, though generic, are definite because one skilled in the art would understand their metes and bounds. Furthermore, indefiniteness is not a basis for an enablement rejection. The Office's reference to functionality is unclear, and Applicants have no found no support that functional language in claims forms the basis of an enablement rejection.

In the pharmaceutical arts, experimentation to determine the optimum chemical composition, formulation, and dosage for treating a particular condition is routine once the lead compounds are identified. In the present case, Applicants have provided exemplary assays for determining the effectiveness of various compounds, preferred dosages, formulations, and patient populations. Accordingly, Applicants have provided a reasonable amount of guidance with respect to the direction in which the experimentation should proceed (M.P.E.P. § 2164.06)

A consideration of the *Wands* factors indicates that the instant claims are enabled.

Rejections under 35 U.S.C. § 112, second paragraph

Claims 1, 2, 12-15, 17, 19, 22, 27, and 28 stand rejected for indefiniteness.

The purpose of the definiteness requirement is to ensure that "the scope of the claim is clear to a hypothetical person possessing the ordinary skill in the pertinent art" (M.P.E.P. § 2171). Furthermore, M.P.E.P. § 2173.02 states:

> Definiteness of claim language must be analyzed, not in a vacuum, but in light of:
> (A) The content of the particular application disclosure;
> (B) The teachings of the prior art; and

(C) The claim interpretation that would be given by one possessing the ordinary level of skill in the pertinent art at the time the invention was made.

In addition, "[b]readth of a claim is not to be equated with indefiniteness" (M.P.E.P. § 2173.04). The instant claims is definite under this standard. Each of the bases for rejection will be addressed in turn.

Applicants have inserted the complete chemical names for the abbreviated compounds in claims 1, 12, 17, 22, and 27, and this basis of the rejection is now moot.

With respect to the rejections of claims 1, 12, 15, 17, and 22 for reciting "compound comprising," Applicants submit that one skilled in the art would understand the metes and bounds of the claims. Although the chemical substituents recited in the claim refer to distinct chemical compounds, one skilled in the art would understand how such compounds could be altered with various substituents, as is common in the chemical and pharmaceutical arts. For example, Radulovacki describes several adenosine analogs including cyclohexyladenosine and adenosine-5'-N-ethylcarboxamide, and one skilled in the art viewing these compounds would readily determine that they comprise adenosine. The rejection may be withdrawn.

Applicants have deleted all "thereby" phrases in the independent claims, as requested by the Office.

The limitation "during the day" has been deleted from claims 2 and 28, and this basis of the rejection may be withdrawn.

With respect to recitation of "sleep disorder" in claim 12, the sole basis of the rejection provided is that the term is generic. As noted above and in M.P.E.P. § 2173.04, the breadth of a claim is not to be equated with indefiniteness. Applicants are not aware of any support for the position that a generic term is per se indefinite, as the Office implies. The term is defined in the specification on page 2, lines 27-28. Furthermore, the term is commonly used in the art, as evidenced by the enclosed PubMed search indicating that the term has appeared in over 500 references prior to the filing date of the present application. The term is therefore definite as required. This basis for the rejection should be withdrawn.

With respect to the negative limitation recited in claim 12, "is not compromised by an existing physical condition," the sole basis for the rejection is that the limitation is improper "because the particular 'existing physical limitation[s]' have not been specified in the claim." Again, this rejection appears to be based on the fact that physical condition is a generic term. As discussed above, breadth is not indefiniteness. This term is commonly used in the art and would be understood by one skilled in the art. Indeed, a PubMed search of the term "physical condition" yielded 1195 references prior to the instant filing date. This term is thus also definite, and requiring Applicants to list all possible conditions is improper. Moreover, this term is not indefinite simply because it appears as part of a negative limitation. M.P.E.P. § 2173.05(i) states. "The current view of the courts is that there is nothing inherently ambiguous or uncertain about a negative limitation. So long as the boundaries of the patent protection sought are set forth

definitely, albeit negatively, the claim complies with [the definiteness requirement]." This basis of the rejection should also be withdrawn.

The Office has rejected claim 13 for lack of antecedent basis. The Office suggests including the term "further comprising – in order to effectively address this expansion of the subject matter definition of claim 12." The grounds for this rejection are unclear. First, adding the limitation "further comprising" is inappropriate in this instance, because the sleep disorder is a consequence of the substance abuse disorder and does not further include the substance abuse disorder. Moreover, recitation of the underlying cause of the sleep disorder in a dependent claim is not expansion of the subject matter of claim 12. As discussed, "sleep disorder" is a generic term, and the limitations of claim 13 are directed to a subset of the possible disorders. Thus, the recitation of the cause of the sleep disorder in claim 13 actually limits claim 12 and does not expand it. This basis of the rejection should be withdrawn.

The Office also states that claim 13 is incomplete because "the particular 'substance abuse disorder' has not been specified." This basis of the rejection also appears to be a rejection of a generic term. Again, the law is clear that breadth is not indefiniteness. One skilled in the art would understand what is meant by "substance abuse disorder," even though the term is generic to a variety of conditions. This understanding of the term in the art is evidenced by the enclosed PubMed search indicating that the term has appeared in 60 references prior to the filing date of the present application. The term is therefore definite.

The Office has rejected claim 14 as being "incomplete because the list of abused substances is not preceded by the term – caused by –." Claim 14 recites that the substance abuse disorder is "alcohol, caffeine, or cocaine *dependence*." The claim is complete as written because the substance abuse disorder is alcohol *dependence*, caffeine *dependence*, or cocaine *dependence*. That is, a substance dependency does not cause a substance abuse disorder; the dependency is the disorder. The rejection should be withdrawn.

The rejection of claim 19 for not listing particular substance abuse disorders is similar to that of claim 13. As stated above, Applicants are entitled to use generic terms in claiming an invention. In addition, the fact that a generic term is used in a negative limitation is not a basis for making an indefiniteness rejection, as discussed above with respect to claim 12.

The basis of the rejection of claim 22 is that "the generic preamble term 'sleep disorder' is not specifically defined in terms of what sleep disorder or disorders are to be treated." As with claims 12, 13, and 19, a term is definite if one skilled in the art would understand its metes and bounds. The fact that the claim is generic is of no moment in this analysis. As stated above, "sleep disorder" is a well known term used in the art and referenced in over 500 publications. Accordingly, one skilled in the art would understand the metes and bounds of the term. Furthermore, one skilled in the art would understand the meaning of "insomnia" and "sleep apnea." Since one skilled in the art would

understand the generic term and the two specific conditions Applicants have excluded from claim 22, the claim is definite.

Obviousness-type Double Patenting

Claims 1-3, 5, and 7-29 stand rejected for obviousness-type double patenting over claims 1-16 of Renshaw (U.S. Patent No. 6,103,703) for "substantially overlapping subject matter." The standard for obviousness-type double patenting is "does any claim in the application define an invention that is merely an obvious variation of an invention claimed in the patent?" (M.P.E.P. § 804). As is further stated in this section, a rejection based on obviousness-type double patenting should make clear (A) the differences between the inventions defined by the conflicting claims and (B) the reasons why the skilled artisan would conclude that the invention defined in the instant claims is an obvious variation of the patented claim. The Office has provided neither of these bases to support the rejection.

The claims of Renshaw are directed to methods of preventing or ameliorating a stimulant-induced disorder or methods of preventing or ameliorating stimulant-induced cerebral vasoconstriction sequelae. The instant claims are directed to methods of normalizing the sleep/wake cycle, treating a sleep disorder, or increasing the cognitive function of a sleep-deprived mammal. The instant claims are all related to sleep while the Renshaw claims are silent with respect to sleep. Furthermore, disruption of the sleep/wake cycle, sleep disorders, and decreases in cognitive function may also occur in

the absence of a stimulant. Thus, the instant claims are not obvious variations of those of Renshaw. This rejection should be withdrawn.

Rejections under 35 U.S.C. § 102

Claims 1-3, 5, and 7-29 stand rejected for anticipation by Yamamoto and Wurtman. Claims 1-3, 5, 7-14, 16-21, and 27-29 stand rejected for anticipation by Fernandez, and claims 1-3, 5, 7-14, and 16-29 stand rejected for anticipation by Ferrer, Radulovacki, and Satoh. In order to anticipate a claim, the reference must teach each and every limitation (M.P.E.P. § 2131). In the present case, none of the cited references anticipates the instant claims for the following reasons.

The Invention

Each of rejected independent claims 1, 12, 17, 22, and 27 requires the administration of one of the recited compounds to a mammal either to (1) normalize the mammal's sleep/wake cycle (claims 1 and 27), (2) treat the mammal's sleep disorder (claims 12 and 22), or (3) increase cognitive function in a sleep-deprived mammal (claim 17).

While each of these uses has a connection to lack of proper sleep, Applicants emphasize that, in order to anticipate these claims, the prior art must teach the administration of one of the *recited compounds* for the *specific use* recited in the claims,

rather than sleep in general. In the present case, the cited references do not meet this standard.

Yamamoto

Amended claims 1 and 27 are directed to a method of normalizing the sleep/wake cycle of a mammal by administration of particular compounds.

In contrast to claim 1, which is directed to *oral* administration, Yamamoto is directed to *ophthalmic* administration (see Abstract and specification generally). Yamamoto does not recommend oral administration and in fact states, "there is no report, except [with respect to melatonin and tryptophan], that the oral administration of the above described sleep adjusting substances derived from an organism is effective. This is because these substances have a disadvantage that they are easily metabolized in an organism and scarcely reach the region for adjusting the biological rhythm in the brain since they are derived from an organism. Therefore, it has been impossible to put these substances to practical use." (col. 2, ll. 23-31) Yamamoto thus fails to teach oral administration as instantly claimed, and the rejection of claim 1 for anticipation by Yamamoto may be withdrawn.

Claim 27 has been amended to recite administration of a compound comprising CMP, CDP, CTP, dCMP, dCDP, dCTP, CDP-choline, cytosine, UMP, UDP, UTP, triacetyl uridine, creatine, AMP, ADP, ATP, S-adenosylmethionine, dipyridamole,

propentofylline, or EHNA. Yamamoto does not disclose any of these compounds, and the rejection of this claim may also be withdrawn.

Claims 12 and 22 are directed to methods of treating a *sleep disorder.* With respect to this claim, the Office states, "since [Yamamoto] includes both sleep inducing and sleep inhibiting substances, it is inherent that administering these compounds in proper sequence will effectively treat a sleep disorder...." Whether or not the compounds disclosed in Yamamoto could, if administered in proper sequence, treat a sleep disorder is irrelevant to the novelty of claims 12 and 22. What is relevant is whether Yamamoto *teaches*, either explicitly or inherently, treatment of a sleep disorder. The Office has not indicated a particular portion of Yamamoto describing a complete method for treatment of a sleep disorder as is required under M.P.E.P. § 2112. Indeed, the M.P.E.P. at that section explicitly states that an inherency rejection is improper if it is based on optimization of conditions, i.e., if administered in proper sequence, and not what was necessarily present in the prior art. Accordingly, the rejection should also be withdrawn.

Amended claim 17 is directed to a method of *increasing cognitive function in a sleep-deprived mammal.* In order to anticipate claim 17, the prior art must teach a method of increasing cognitive function in such a sleep-deprived mammal. In support of this rejection, the Office states: "in light of the teaching of inhibition of sleep for compounds including cytidine, it is presumed that administration of cytidine will enhance cognitive function as well." The Office has, however, provided no support – either in the reference

itself or other prior art – for the assertion that inhibition of sleep will enhance cognitive function. Accordingly, the rejection should be withdrawn.

Fernandez

The sole basis for the rejection of all independent claims over Fernandez is that "the administration of CDP-choline to treat insomnia is specifically taught."

With respect to claims 1 and 27, this reasoning is insufficient for a finding of anticipation. As discussed above, claims 1 and 27 are directed to methods of normalizing the sleep/wake cycle, and not to methods of treating insomnia. Insomnia is an inability to sleep. In contrast, disruptions to the sleep/wake cycle do not result in an inability to sleep but rather a deviation from normal in the periods when one is awake and when one is asleep. That is, normalization of the sleep/wake cycle will not result in more sleep but rather differences in the time when one is asleep. The two conditions are thus not identical, and the teachings of Fernandez on treatment of insomnia are irrelevant to the novelty of claims 1 and 27.

Similarly, claim 17 is directed to a method of increasing cognitive function in a sleep-deprived mammal, which is an effect distinct from treatment of insomnia. The Office has not provided any support for its apparent assumption that treatment of insomnia will also result in an increase in cognitive function in a sleep-deprived mammal. The rejection should be withdrawn.

Finally, with respect to claims 12 and 22, claim 12 is directed to a method for treating a sleep disorder in a mammal whose health is not compromised because of an existing physical condition, and claim 22 is directed to treatment of sleep disorders other than insomnia. In contrast to claim 12, Fernandez was directed to treatment of mammals "suffering from several neurological processes" (Summary, pg. 1073 and Table 1, pg. 1075), i.e., patients suffering from an existing physical condition. Thus, Fernandez does not teach what is claimed in claim 12. Claim 22 also specifically excludes insomnia and cannot be anticipated by a reference disclosing treatment of insomnia. The rejection of these claims should also be withdrawn.

Wurtman

The basis for the rejection over Wurtman is that "the administration of citicoline (CDP-choline) is disclosed to effectively treat cognitive dysfunctions including insomnia, motor coordination, and memory impairment." Applicants respectfully disagree with the Office's interpretation. First, the only place where insomnia is mentioned in Wurtman is paragraph [0025]. This paragraph describes prior art studies on the effects of citicoline during the rehabilitation phase of patients who may have suffered a stroke. Nowhere does Wurtman describe insomnia or motor coordination as "cognitive dysfunctions" as asserted by the Office.

With respect to claims 1 and 27, as has been previously stated, treatment of insomnia is not equivalent to normalization of the sleep/wake cycle. In addition,

treatment of cognitive dysfunction is not equivalent to treatment of the sleep/wake cycle. Wurtman thus does not anticipate claims 1 or 27.

With respect to claim 12, the claim is limited to treatment of a mammal whose health is not compromised by an existing physical condition. The only discussion of a sleep disorder in Wurtman is however in connection with patients' recovery from a stroke, i.e., patients having an existing physical condition. With respect to claim 22, again this claim explicitly excludes insomnia, and any teachings in Wurtman on insomnia are irrelevant to the novelty of the claim. The rejection of these claims should be withdrawn.

Finally, claim 17, directed to increasing cognitive function in a sleep deprived mammal, is not anticipated by Wurtman because the reference fails to teach administration of the compound to mammals deprived of sleep in order to increase cognitive function.

Ferrer

The basis for the rejection over Ferrer is that "the administration of pharmaceutical compositions including CDP-choline [is] disclosed to effectively treat a variety of symptoms related to alcoholism and withdrawal therefrom including insomnia and disorientation."

As above, any disclosure solely relating to treatment of insomnia is not relevant to methods of normalizing the sleep/wake cycle; methods of increasing cognitive function in

a sleep-deprived mammal; and methods of treating sleep disorders other than insomnia. The rejection of claims 1, 17, 22, and 27 should therefore be withdrawn.

In addition, claim 12 is directed to a method of treating a sleep disorder in a mammal whose health is not compromised by an existing physical condition. In contrast, Ferrer, like Fernandez and Wurtman, only discloses a treatment of insomnia in connection with patients having an existing physical condition, i.e., alcohol withdrawal syndrome. Accordingly, Ferrer does not teach what is claimed.

Radulovacki or Satoh

The basis for the anticipation rejection over these references is "... some experimental evidence suggests that adenosine may have a role in sleep."

With respect to claims 1 and 12, these claims do not recite any adenosine containing compound and cannot be anticipated by either reference. In addition, claim 27 has been amended to delete adenosine, and therefore neither reference anticipates this claim.

For claims 17 and 22, "having a role in sleep" is not equivalent to increasing cognitive function in a sleep-deprived mammal or treating a sleep disorder other than insomnia or sleep apnea. The rejection of these claims should also be withdrawn.

CONCLUSION

Applicants submit that claims are in condition for allowance, and such action is respectfully requested. Enclosed is a Petition to extend the period for replying for three months, to and including November 1, 2006, and a check in payment of the required extension fee. If there are any additional charges or any credits, please apply them to Deposit Account No. 03-2095.

Respectfully submitted,

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